

Ser. No. 10/059,422
YOR920010368US2

2

AMENDMENTS TO THE CLAIMS:

Claims 1-14 (Canceled)

15. (Currently amended) A semiconductor structure, comprising:
- a substrate;
 - a crystalline oxide layer comprising single-crystal oxide formed over said substrate; and
 - an epitaxial silicon layer formed on said crystalline oxide layer.
16. (Original) The structure of claim 15, further comprising:
- a silicon oxide layer formed between said substrate and said crystalline oxide layer.
17. (Original) The structure of claim 15, wherein the crystalline oxide layer comprises an oxide of at least one of the rare earth elements.
18. (Original) The structure of claim 15, wherein the crystalline oxide layer comprises an oxide of yttrium.
19. (Original) The structure of claim 15, wherein the crystalline oxide layer comprises a mixture of oxides of different rare earth elements and yttrium.
20. (Currently amended) The structure of claim 15, further comprising:
- at least one additional layer of crystalline oxide formed on said epitaxial silicon layer; and
 - at least one additional layer of silicon formed on said additional layer of crystalline oxide.
21. (Currently amended) A semiconductor structure, comprising:
- a substrate;
 - a crystalline oxide layer comprising single-crystal oxide formed over said substrate; and
 - an epitaxial germanium layer formed on said crystalline oxide layer.

Ser. No. 10/059,422
YOR920010368US2

3

22. (Original) The structure of claim 21, further comprising:

a silicon oxide layer formed between said substrate and said crystalline oxide layer.

23. (Original) The structure of claim 21, wherein the crystalline oxide layer comprises an oxide of at least one of the rare earth elements.

24. (Original) The structure of claim 21, wherein the crystalline oxide layer comprises an oxide of yttrium.

25. (Original) The structure of claim 21, wherein the crystalline oxide layer comprises a mixture of oxides of different rare earth elements and yttrium.

26. (Currently amended) The structure of claim 21, further comprising:

at least one additional layer of crystalline oxide formed on said epitaxial germanium layer; and

at least one additional layer of germanium formed on said additional layer of crystalline oxide.

27. (Currently amended) A semiconductor structure, including:

a crystalline oxide surface comprising a single-crystal oxide surface; and

an amorphous layer of at least one of silicon, germanium, gallium arsenide, aluminum arsenide, indium phosphide, aluminum antimonide, indium arsenide, gallium phosphide and mixed alloys thereof, deposited on said crystalline oxide surface by evaporation or chemical vapor deposition.

Claims 28-55 (Canceled)

Ser. No. 10/059,422
YOR920010368US2

4

56. (Previously presented) The structure of claim 15, wherein said substrate comprises a silicon substrate.

57. (Previously presented) The structure of claim 15, wherein said substrate comprises a germanium substrate.

58. (Previously presented) The structure of claim 21, wherein said substrate comprises a silicon substrate.

59. (Previously presented) The structure of claim 21, wherein said substrate comprises a germanium substrate.

60. (Previously presented) The structure of claim 15, wherein said crystalline oxide layer is formed directly on said substrate.

61. (Previously presented) The structure of claim 21, wherein said crystalline oxide layer is formed directly on said substrate.

62. (Previously presented) The structure of claim 27, further comprising a silicon substrate, wherein said crystalline oxide surface is formed directly on said silicon substrate.

63. (Previously presented) The structure of claim 15, wherein said epitaxial silicon layer comprises a single-crystal epitaxial silicon layer.

64. (Previously presented) The structure of claim 21, wherein said epitaxial germanium layer comprises a single-crystal epitaxial germanium layer.

65. (Previously presented) The structure of claim 15, wherein said crystalline oxide layer

Ser. No. 10/059,422
YOR920010368US2

5

comprises an epitaxial oxide layer.

66. (Previously presented) The structure of claim 21, wherein said crystalline oxide layer comprises an epitaxial oxide layer.

67. (Previously presented) The structure of claim 27, wherein said crystalline oxide surface comprises an epitaxial oxide surface.

68. (Currently amended) The structure of claim 15, wherein said crystalline oxide layer comprises a mixture of oxides of different rare earth elements ~~a single-crystal oxide layer~~.

69. (Currently amended) The structure of claim 21, wherein said crystalline oxide layer comprises a mixture of oxides of different rare earth elements ~~a single-crystal oxide layer~~.

70. (Currently amended) The structure of claim 27, wherein said crystalline oxide surface comprises a surface of a mixture of oxides of different rare earth elements ~~a single-crystal oxide surface~~.

71. (Previously presented) The structure of claim 15, wherein said oxide layer crystallizes to have a bixbyite structure.

72. (Previously presented) The structure of claim 21, wherein said oxide layer crystallizes to have a bixbyite structure.

73. (Previously presented) The structure of claim 27, wherein said crystalline oxide surface crystallizes to have a bixbyite structure.

74. (Currently amended) The structure of claim 15, wherein said crystalline oxide layer is

Ser. No. 10/059,422
YOR920010368US2

6.

perfectly ~~exactly~~ lattice-matched to silicon.

75. (Currently amended) The structure of claim 27, wherein said crystalline oxide surface is perfectly ~~exactly~~ lattice-matched to silicon.